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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/686,959	10/12/2000	Toshiki Usui	Q61232	5709

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[REDACTED] EXAMINER

TRAN, LY T

[REDACTED] ART UNIT

[REDACTED] PAPER NUMBER

2853

DATE MAILED: 08/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

DK

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/686,959	USUI, TOSHIKI
	Examiner	Art Unit
	Ly T TRAN	2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) FROM  
 THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-97 is/are pending in the application.
- 4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1,6-13,25,30-37,49,50,53,55-62,74,77 and 79-86 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_ is: a) approved b) disapproved by the Examiner.  
 If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
 a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_

Continuation of Disposition of Claims: Claims withdrawn from consideration are 2,3,5,14-24,26-29,38-48,51,52,54,63-73,75,76,78,87-97 and 776.

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of species 1, figure 5-11 in Paper No. 11 is acknowledged.

***Specification***

2. The disclosure is objected to because of the following informalities: the specification does not discloses the limitation of ink consumption amount controlling means for controlling the ink consumption amount of the recording head based of the ink reservation amount as a function of the temperature change amount per unit of time.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 4, 6-13, 25, 30-37, 49, 50, 53, 55-62, 74, 77 and 79-86 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. These claims contain the limitation such as ink consumption amount controlling means for controlling the ink consumption amount of the recording head based of the ink reservation amount

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as a function of the temperature change amount per unit of time which was not described in the specification.

The remaining claims are also rejected due to their dependency.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 4, 6-13, 25, 30-37, 49, 50, 53, 55-62, 74, 77 and 79-86 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear how the ink reservation amount acts as a function of the temperature, because in the claims 1, 25, 49, 50 and 74 recite the ink reservation amount for obtaining the ink reservation amount in the ink reservoir and the temperature change amount obtaining for obtaining the temperature change, so how the ink reservation amount acts as a function of the temperature. The specification only discloses to the ink reservation amount for obtaining the ink reservation amount in the ink reservoir and the temperature change amount obtaining for obtaining the temperature change and controlling the ink consumption amount based on the temperature and ink reservation amount. For purpose to examination, the Examiner interpret the claim such as ink consumption amount controlling means for controlling the ink consumption amount of the recording head based on the temperature changing amount and the ink reservation amount.

The remaining claims are also rejected due to their dependency.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 4, 6, 12, 13, 25, 30, 35-37, 49, 50, 53, 55, 60-62, 74, 77, 79 and 84-86 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurosawa (USPN 5,900,888) in view of Takahashi (USPN 6,145,949).

With respect to claims 1, 6, 12, 13, 25, 30, 35-37, 49, 50, 53, 55, 60-62, 74, 77, 79 and 84-86, Kurosawa discloses an ink jet apparatus and a method comprising:

- Ink reservation amount obtaining means for obtaining the ink reservation amount in the in reservoir (Column 8: 39-42)
- Ink consumption amount controlling means for controlling the ink consumption amount of the recording head based ink reservation amount obtaining by the ink reservation amount obtaining means (Column 10: line 56-67)
- the ink reservation amount obtaining section detects the ink consumption amount and obtains the ink reservation amount in the ink reservoir (Column 8: line 39-42).
- generating a driving signal that makes the recording head perform a recording operation, ink consumption amount controlling means adjust the

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driving signal for the recording operation, driving pulse for ejecting ink droplets, ink consumption amount controlling means adjusts the driving voltage and pulse form of the driving pulse based on the ink reservation amount (Column 9: line 14-16 discloses print control performed in accordance with the determination result of ink, the print control is a broad term and can be included many thing that relate to printing operation such as driving form, ejection volume ect.)

However, Kurosawa fails to teach detecting the temperature of the head, temperature information storing means for storing the head temperature, temperature information from the temperature detecting means generating a driving signal that makes the recording head perform a recording operation, ink consumption amount controlling means adjust the driving signal for the recording operation, driving pulse for ejecting ink droplets, ink consumption amount controlling means adjusts the driving voltage and pulse form of the driving pulse based on the temperature change amount.

Takahashi teaches detecting the temperature of the head (Column 4: line 62-64), temperature information storing means for storing the head temperature (Column 7: line 12-13), temperature information from the temperature detecting means generating a driving signal that makes the recording head perform a recording operation, ink consumption amount controlling means adjust the driving signal for the recording operation, driving pulse for ejecting ink droplets, ink consumption amount controlling means adjusts the driving voltage and pulse form of the driving pulse based on the temperature change amount (Column 6: line 10-26, Fig.4A, 4B).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teaching of Kurosawa to have a detector to detect the temperature and control the driving signal, driving pulse for ejecting ink droplet based on the temperature as taught by Takahashi. The motivation of doing so is obtain a constant density.

6. Claims 7-11, 31-34, 56-59 and 80-83 rejected under 35 U.S.C. 103(a) as being unpatentable over Kurosawa (USPN 5,900,888) in view of Takahashi (USPN 6,145,949) as applied to claims 1, 25, 49 and 74 above, further in view of Takayanagi (JP 05-050590) and Murray et al. (USPN 6,290,321).

The combination of Kurosawa and Takahashi discloses the claimed invention except for store the recording head temperature information from the time when the power source is turned on, in the waiting state of the recording operation, holds the stored head temperature information even after the power source is turned off and using the head temperature information held in the temperature information storing means when the power source is turned on again within a specified time after the power source is turned off.

Takayanagi teaches to store the temperature information in a non-volatile memory (Abstract).

Murray teaches using the non-volatile memory to retain the data on the cartridge even the power turn off (Column 6: line 38-43)

The combination of Takayanagi and Murray et al teach store the recording head temperature information from the time when the power source is turned on, in the waiting state of the recording operation, holds the stored head temperature information even after the power source is turned off. While Takayanagi and Murray et al does not specifically teach using the head temperature information held in the temperature information storing means when the power source is turned on again within a specified time after the power source is turned off, it provides the teaching of by retaining the information after the power turned off, the information can be used when the power turns on again so eliminating the need to redetect the head temperature after the power turns on again.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify to store the recording head temperature information from the time when the power source is turned on, in the waiting state of the recording operation, holds the stored head temperature information even after the power source is turned off and using the head temperature information held in the temperature information storing means when the power source is turned on again within a specified time after the power source is turned off as taught by Takayanagi and Murray et al. The motivation to do so is in order to retain the data after the power is turned off.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ly T TRAN whose telephone number is 703-308-0752. The examiner can normally be reached on M-F (7:30am-5pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 703-308-4896. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0967.

July 25, 2003



Stephen D. Meier  
Primary Examiner